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VIA CERTIFIED MAIL
ARTICLE NUMBER 7003 0500 0001 1966 0813

December 22, 2003

Mr. Juan Parra
Environmental Engineer
U.S. Environmental Protection Agency
Office of Solid Waste
Waste Treatment Branch
1200 Pennsylvania Avenue
Washington, D.C. 20460

**Re: Draft Direct Final Rule Notice
Heritage Petition for Treatability Variance
for Selenium Bearing Wastestream in
Accordance with 40 CFR 268.44**

Dear Mr. Parra:

Heritage Environmental Services, LLC ("Heritage") is providing the following comments on the Draft Direct Final Rule, *Federal Register* notice that was e-mailed to Heritage and Guardian on December 18, 2003. The attached sheets provide the only Heritage comments and suggested changes are underlined and provided in bold-type.

We look forward to the final publication of this variance in the *Federal Register* very soon. We appreciate your hard work and the work of your staff's attention to this variance request.

Should you have any questions, please contact me at 317-486-2773 or doug.opell@heritage-enviro.com.

Sincerely,

Heritage Environmental Services, LLC

Douglas A. Opell, LPG

cc: J. Riley, Guardian
R. Roper, Heritage
A. Conley, Heritage
CorpComp File



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An approach to immobilize the selenium in the Guardian waste and to reduce its exposure to leaching agents is to stabilize it with cement. With this technology option, the waste is solidified into a solid of high compressive strength, thereby incorporating the hazardous components of the electrostatic precipitator dust into a solid matrix. The solid matrix substantially lowers the surface area potentially exposed to leaching from that of untreated dust. As a result, the solidified waste should have a lower leaching potential after the waste is disposed in a hazardous waste landfill.

As mentioned earlier, analytical data on the raw Guardian waste indicates that the only underlying hazardous constituent present is chromium. Heritage conducted treatability studies demonstrating that addition of Portland cement alone is not sufficient to reduce the chromium levels to below the 0.6 mg/L standard. To further treat the chromium in the waste, the hexavalent chromium ion must be reduced to the trivalent state so that precipitation can occur. Heritage used ferrous sulfate for this purpose.

Heritage conducted approximately 200 preliminary rounds of testing using different stabilization recipes. Heritage then conducted additional tests using the stabilization recipes used by Chemical Waste Management (see Section III). Heritage's optimized stabilization recipe from these rounds of testing consists of 0.35 parts ferrous sulfate, 1 part cement and 1 part cement kiln dust. Collectively, the TCLP tests on treated Guardian waste samples indicate a significant reduction in leachability. This reduction, however, is not enough to meet the LDR standard of 5.7 mg/L it, as measured by TCLP.

EPA has determined, in analyzing the data from the preliminary tests, that most effective stabilization recipe for this waste consists of 0.35 parts iron sulfate combined with 1.0 part cement and 1.0 part cement kiln dust, resulting in a reagent to waste ratio of 2.35 to 1. Water is also added to make a thick paste that upon curing, solidifies the treated waste into a hard cementitious material.

Table I shows the results of leaching, as measured by TCLP, of Guardian waste treated using the optimized stabilization recipe. A summary of the samples is presented in Table I. Heritage stabilized the samples with reagent to waste ratios of 2.35 to 1. Reagents included cement, cement kiln dust, and iron sulfate. Treated selenium TCLP concentrations for the five samples ranged from 28.4 mg/L to 35.6 mg/L.

Table I.--Summary of Guardian Selenium Waste

Guardian Sample No.	Total selenium content estimate (%)	Untreated Se Waste TCLP	Treated Se Waste TCLP
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		(mg/L)	(mg/L)
1183982	6.7% (67,000 ppm)	70	30.4
1183983	5.8% (58,000 ppm)	72	35.6
1184103	6.0% (60,000 ppm)	66	25.6
1184104	7.2% (72,000 ppm)	120	26.7
1184340	6.3% (63,000 ppm)	68	28.4

C. Alternative Treatment Standard for Heritage to Treat the Guardian Selenium Waste

The glass manufacturing waste from Guardian is significantly different in chemical composition from the waste used to generate the original selenium treatment standard. Data from Heritage demonstrate that wastes containing high concentrations of selenium are not easily treated using the BDAT technology of stabilization. As previously acknowledged and discussed by the Agency in a past rulemaking (see 62 FR 26041), it can be technically challenging to treat wastes containing selenium and other metals, e.g., cadmium, lead or chromium, because of their different chemical properties and solubility curves.

In the Phase IV rule, the Agency did not generally use stabilization data with reagent to waste ratios greater than 1⁵. However, in the case for selenium, the existing treatment standard, as discussed earlier, was calculated from data with reagent to waste ratios ranging from 1.8 to 2.7.

Using the BDAT methodology⁶, the Agency has calculated an alternative treatment standard of 39.4 mg/L , as measured by the TCLP based on five data points (25.6, 26.7, 28.4, 30.4, and 35.6 from table I) that were the result of stabilization treatment using a reagent to waste ratio of 2.35 for the waste generated by Guardian Industries Corp. The treatment recipe is consistent with the reagent to waste ratios used to establish the existing standard of 5.7 mg/L, as measured by the TCLP, and the treatment data from CWM's annual selenium reports (The CWM variance standards are discussed in Section III).

⁵“Final Draft Site Visit Report for the August 20-21 Site Visit to Rollins Environmental's Highway 36 Commercial Waste Treatment Facility Located in Deer Trail, Colorado,” November 21, 1996, and the economic analysis supporting the Phase IV final rule.

⁶ BDAT Background Document for Quality Assurance/Quality Control Procedures and Methodology, October 23, 1991.

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Subtitle C waste.

Finally, EPA has reviewed Chemical Waste Management Inc. (CWM) selenium variance annual reports on the stabilization recipes being utilized to meet the alternative treatment standards and we have determined that stabilization by chemical fixation of selenium into cement in addition to adding ferrous sulfate as a reagent for chromium is the best demonstrated available technology for the Guardian waste.

Therefore, EPA is today granting a site-specific variance from the D010 treatment standards for the Guardian waste stream in question since the waste cannot be physically treated to the level specified in the regulations. Today's alternative treatment standard will provide sufficient latitude for Heritage to treat the other metal present in the waste to LDR treatment standards and, by raising the selenium treatment standard, will avoid the difficulty posed by the different metal solubility curves. EPA is amending 40 CFR 268.44 to note that Heritage Environmental Services, LLC would be subject to a selenium treatment standard of 39.4 mg/L, as measured by TCLP.

E. What Are the Terms and Conditions of the Variance?

Since this rule approves a variance from a numerical treatment standard, Heritage may vary the reagent recipe it uses to best meet the alternative numerical standard. The Agency notes that, to avoid questions of impermissible dilution, Heritage will need to keep the reagent to waste ratios within acceptable bounds. No specific ratios are being established in today's rule because the Agency does not desire to prevent further optimization of the treatment process. However, the Agency recommends that Heritage use a reagent to waste ratio of 2.35 to 1 as an upper limit, **where the reagents are measured on a dry weight basis.** This is the ratio used by the Agency in establishing today's alternative treatment standard.

The treated waste, provided it meets the applicable LDR treatment standards for the other hazardous constituents in the waste,⁷ will be disposed in a RCRA Subtitle C landfill.

III. Basis for Permanently Establishing Chemical Waste Management's Selenium Variances

⁷Note that disposal in a Subtitle C landfill is required because the treated wastes are still characteristic for selenium (i.e., the waste has TCLP values above the toxicity characteristic level for selenium of 1.0 mg/L).